

INSIDE SEA GRANT

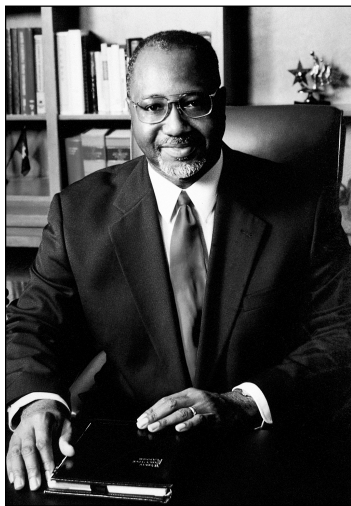
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Davis elected new board chair

Dr. Leroy Davis, president of South Carolina State University, has been elected chair of the S.C. Sea Grant Consortium Board of Directors. Davis began his one-year term in January.

Davis has spent much of his professional life at South Carolina State University, where he began his academic career as a biology professor. In 1990, he became Vice Provost for Academic Administration and was later promoted to Vice President for Student Services. Davis was appointed the eighth president of South Carolina State University in 1996. He has



Dr. Leroy Davis

also published articles in general and technical journals. "I look forward to serving as the Consortium's board chair," said Davis. "I am excited to have the opportunity to be engaged in science, incorporating my background in molecular biology."

"I am extremely pleased that Dr. Davis has been elected chair of the Consortium Board of Directors," said Rick DeVoe, executive director of S.C. Sea Grant Consortium. "The Consortium and its

programs will certainly benefit from his guidance and stature as one of the state's preeminent university leaders."

Oyster shell research leads to fertilizer enhancer

Some farmers are significantly improving crop yields with a biodegradable fertilizer enhancer inspired by the Eastern oyster. Sea Grant researcher A.P. "Hap" Wheeler, Clemson University biologist, has explored a variety of potential commercial uses for polyaspartic acid, modeled after oyster shell proteins. Based on Wheeler's research, scientists discovered that polyaspartic acid helps plants absorb additional nutrients from the soil. By applying this polymer to soils, farmers can gain greater yields with smaller amounts of fertilizer.

Donlar Corp., based in Bedford Park, Illinois, manufactures polyaspartic acid with the branded names AmiSorb, used on agricultural crops such as corn and wheat, and Magnet, used on vegetable crops such as tomatoes.

Wheeler doesn't know exactly how these products help plants absorb nutrients more efficiently. "They seem to enhance movement of nutrients in soils to the plant root," says Wheeler.

Yet "the polymer does not penetrate inside the plant," says Ramon Georgis, Donlar's

continued on page 2

Inside Sea Grant is published two times a year to inform interested constituents about opportunities, activities, goals and accomplishments of the S.C. Sea Grant Consortium.

S.C. Sea Grant Consortium is a university-based network supporting research, education, and outreach to conserve coastal resources and enhance economic opportunity for the people of South Carolina.

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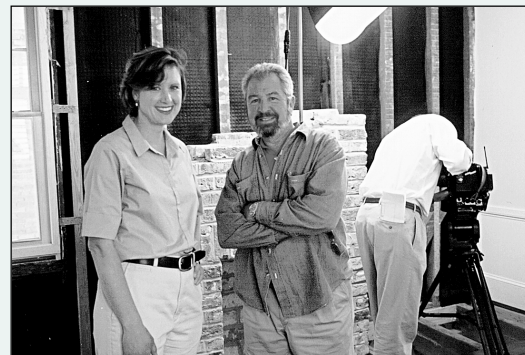
director of research and development. Because the fertilizer enhancer does not reach into the plant, and because it is biodegradable, the Environmental Protection Agency waived a hurdle in its normal approval process for new agricultural products.

Farmers and environmental regulators have been searching for ways to reduce fertilizer loads, because fertilizers often run off into waterways during heavy rains. Using Donlar's polymer, farmers could save money while protecting water quality. With an investment of \$8-10 dollars on AmiSorb, farmers can enhance their crop yield by \$20, says Georgis.

Now Wheeler is collaborating with Donlar scientists to examine how long the fertilizer enhancer lasts in the soil. This study could help show farmers what kind of application rates that crops need each year. "If the polymer stays in soil for some time, maybe you don't have to apply as much every season," says Wheeler.

In the 1980s, Wheeler and a colleague joined Larry Koskan, who later became the founder and CEO of Donlar Corp., to perfect an inexpensive process to produce polyaspartic acid, a commercial form of the oyster protein. Based on Sea Grant-funded research on oyster proteins, Donlar Corp. was founded in 1990 to produce industrial quantities of polyaspartic acid for various commercial uses. Sea Grant research was a key factor in Donlar's receipt of a Presidential Green Chemistry Challenge Award from the Environmental Protection Agency in 1996, according to Koskan.

Accomplishments



Beth Judge and Bob Vila take a break between shots.

113 Calhoun featured on Bob Vila's "Home Again"

In March, Bob Vila's "Home Again" show filmed a five-minute segment at 113 Calhoun Street: A Center for Sustainable Living, featuring the hazard-resistant and sustainable features of the reconstructed building. The segment is scheduled to air in September.

Beth Judge, coastal hazards specialist for the S.C. Sea Grant Extension Program, provided an on-air tour of the 113 Calhoun Street house. The 125-year-old building, located in downtown Charleston and scheduled to open this summer, will function as a laboratory and demonstration site for hazard-resistant retrofit techniques.

Judge pointed out the new foundation, sustainable construction materials, and reinforced structural connections. Vila noted a special "high-wind retrofit bracket," which homeowners can install to reinforce structural connections without removing sheetrock from the walls. The bracket was invented by graduate student **Ed Sutt** and civil engineer **Tim Reinhold** of Clemson University.

The 113 Calhoun Street project is a partnership of the S.C. Sea Grant Consortium, Clemson University Extension Service, the City of Charleston, the Federal Emergency Management Agency, South Carolina state government, and Charleston County.

at a glance

Marine education book published

S.C. Sea Grant published **"Of Sand and Sea: Teachings From the Southeastern Shoreline."** Written by Paula Keener-Chavis and Leslie Reynolds Sautter for elementary and secondary educators, the text answers questions about the ocean and serves as a general interest book for anyone who wants to learn more about coastal and marine environments.

To order, send your check made out to S.C. Sea Grant for \$5, tax included, to S.C. Sea Grant Consortium, 287 Meeting Street, Charleston, SC 29401.

Guide helps visitors find history

The S. C. Sea Grant Extension Program worked with the S.C. Heritage Corridor and the African-American Heritage Council to produce a guide, **"Touring the S.C. African-American Trail of Charleston, Colleton and Dorchester Counties."** This guide helps visitors explore special and diverse places, highlighting points of interest in African-American heritage and black-owned businesses.

You can view a copy on the Web at <www.sc-heritagecorridor.org/html/coastal2.html>. To order, call (843) 722-5940.

DeVoe makes surprise announcement

Rick DeVoe, the S. C. Sea Grant Consortium's executive director, presented a well-received keynote address at the South Carolina Marine Educators Association (SCMEA) annual conference held at the Penn Center on St. Helena Island March 30 – April 2, 2000.

SCMEA members were especially pleased with DeVoe's surprise announcement that Sea Grant will match award dollars one-to-one for each SCMEA award for one year. Awards include travel support for a teacher to attend the National Marine Educators Association (NMEA) conference and the SCMEA conference, and for classroom grants.

Teachers, marine educators, and university professors, all with an interest in marine

science education in South Carolina, attended the conference. The four days consisted of concurrent sessions, field trips and workshops, and several topical forums. The state science standards, smart growth, land ethics, and the coast's natural history were some of the conference's main topics.

New red tide discovered

Scientists from the South Carolina Task Force on Harmful Algae are examining a red tide in state estuaries. Red tides, a common event in many of the world's estuarine regions, are algal blooms that reach densities so high that the water becomes discolored.

A new species of dinoflagellate named *Scrippsiella carolinum* is responsible for red tides that formed in the spring of 1998, 1999 and, 2000, according to **Alan Lewitus**, marine scientist at USC Belle Baruch Institute and S.C. Department of Natural Resources. Monitoring of the North Inlet estuary indicates that *Scrippsiella* bloomed after rain that had followed a prolonged dry period.

Lewitus predicts that *Scrippsiella* red tides will bloom this spring, and researchers will sample intensively to determine *Scrippsiella's* distribution throughout state estuaries. They will combine aerial analyses (fly-overs) with water sampling (known as "groundtruthing") to figure out the red tide's geographic range. They will also focus on characterizing the bloom's physiological properties to learn how environmental conditions affect its growth and survival.

The S.C. Task Force on Harmful Algae includes representatives from the S.C. Sea Grant Consortium, state and federal natural resource agencies, universities, and other organizations.

S.C. SEA GRANT EXTENSION PROGRAM

S.C. Sea Grant Extension Program is a joint outreach program of Clemson University's Cooperative Extension Service and the S.C. Sea Grant Consortium.

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The Consortium's Board of Directors is composed of the chief executive officers of its member institutions.

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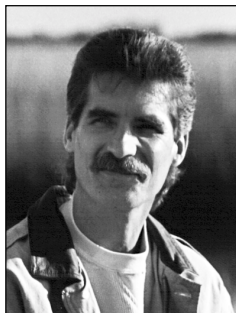
Dr. Paul A. Sandifer
S.C. Department of
Natural Resources

Message from the Executive Director:

A Growing Commitment to Education

About a year ago, the S.C. Sea Grant Consortium convened a strategic planning workshop to help frame our role in supporting K-12 marine science education in South Carolina. The workshop attendees—teachers, education officials, university educators, and others—identified a number of needs facing K-12 marine science education. They recommended that the Consortium (1) provide support for curriculum development, (2) serve as an information clearinghouse for ongoing marine science education activities, (3) incorporate marine education in Sea Grant research programs, (4) offer teacher enhancements, and (5) establish a standing K-12 Marine Education Advisory Committee.

We have begun to address a number of these recommendations. The Advisory Committee is now being established. More-



Rick DeVoe

over, the Consortium recently published *Of Sand and Sea: Teachings from the Southeastern Shoreline*, written by Paula Keener-Chavis and Leslie Sautter, that provides teachers and students with an educational resource about our ocean planet.

Last year we hired a half-time marine education specialist, Elizabeth King, and I am pleased to announce that she will become a full-time employee of the Consortium this October. With Elizabeth on board, we will be able to enhance our efforts to support the needs of the K-12 marine science education community.

We are also examining the role of the Consortium as an information clearinghouse for K-12 marine education in South Carolina. Given the growing importance of the Internet in the schools, we are establishing a content-based Marine Education Web Site for use by K-12 teachers and their students.

I am excited about our growing commitment to education. If you have any thoughts or ideas about how the Consortium can better serve the education community, please feel free to contact me.